UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK

DYSON, INC., Plaintiff, v. MAYTAG CORPORATION, Defendant.	Civil Action No. 06-CV-6576(DC)

DECLARATION OF SUSAN H. GOLDSMITH

I, Susan H. Goldsmith, declare and state as follows:

1. I am the co-owner of Inter Basic Resources, Inc. ("IBR"). At IBR, I hold the titles of Managing Director and Director of Technical Services. I founded IBR in 1984 and have been the co-owner of the company since 1984. I provide the following testimony, based upon my personal knowledge, except where stated upon information and belief, and, if called as a witness, could and would testify competently to these facts.

Experience and Qualifications

2. I have Bachelor of Science degrees in Cellular Biology and Chemical Engineering from the University of Michigan in 1978, and I have written over 30 technical papers. Prior to founding IBR in 1984, I held various positions at Gelman Sciences in Ann Arbor, Michigan, from 1978 through 1984, focusing on aspects of filtration and membrane engineering. I founded IBR in 1984 to focus exclusively on the testing of filtration and particulate monitoring, performance and control. In that position, I have spent the last 20 years studying these

engineering issues, and designing, performing and supervising tests regarding filtration and membranes (including vacuum technology, which, at times, relies on filtration). My curriculum vitae is attached as Exhibit 1 to this declaration.

3. I am an active member of ASTM International F11 Committee, which is responsible for F558 (Standard Test Method for Measuring Air Performance Characteristics of Vacuum Cleaners) and F608 (Standard Test Method for Evaluation of Carpet Embedded Dirt Removal Effectiveness of Household/Commercial Vacuum Cleaners), among other ASTM standards, and Working Group 3 of the International Electrotechnical Commission ("IEC") Committee for Standard 60312 (Vacuum Cleaners for Household Use – Methods for Measuring the Performance). I have served on the ASTM International F11 Committee for approximately 10 years. I have served on the IEC Committee for Standard 60312 for five years. I serve on the general and task levels of the ASTM committees. Many of my fellow members on the IEC Committee for Standard 60312 are representatives from major vacuum manufacturers and distributors.

4. Both the ASTM and IEC are voluntary industry organizations that provide consensus technical standards for materials, products, systems, and services that guide design, manufacturing, and trade in the global economy. As a member of the IEC and ASTM Committees that deal with measuring vacuum cleaner performance, I am intimately familiar with the design, procedure and theory of vacuum cleaner testing. I also am intimately familiar with how both the ASTM and IEC tests are performed and understand their respective scopes, uses, and limitations.

5. I currently am responsible for the day-to-day operations of IBR. IBR provides high accuracy instrumentation and testing services for filter and filtration systems testing. Founded in

1984, IBR is a privately held, independent corporation headquartered in Grass Lake, Jackson County, Michigan, USA. IBR also has a facility located in Milton Keynes, United Kingdom.

6. IBR's Testing Lab is accredited for filter testing, particulate counting, and particulate cleanliness testing of critical components by the independent and internationally recognized American Association for Laboratory Accreditation ("A2LA"). To my knowledge, the IBR Testing Lab is the only lab of its kind accredited by the A2LA.

7. The IBR Test Lab provides comprehensive performance testing services to the vacuum cleaner industry, as well as to the drinking water, automotive, hydraulic, industrial processing, semiconductor, medical, and pharmaceutical industries.

8. IBR regularly conducts vacuum cleaner performance testing in its Test Lab. IBR tests vacuum cleaners according to both the ASTM and IEC standards. Because of its unique capabilities and reputation in the field, IBR has tested vacuum cleaners on behalf of all of the major vacuum cleaner manufacturers throughout the world.

Conduct of the IEC 60312 Tests on Maytag Legacy and Hoover Fusion

9. IBR was retained by Dyson, Inc. ("Dyson") to test the Maytag Legacy and Hoover Fusion upright vacuum cleaners pursuant to IEC Standard 60312, part 2.9 ("Performance with a loaded dust receptacle") (draft edition 4.0). A copy of this IEC standard is attached hereto as Exhibit 2.

10. The IEC 60312 standard is a consensus standard that was developed by the vacuum cleaner industry over the course of many years to evaluate the performance of vacuum cleaners under consumer-relevant conditions. The Scope of the IEC standard, Part 1.1, states: "This

International Standard is applicable to vacuum cleaners for household use in or under conditions similar to those in households. The purpose of this standard is to specify essential performance characteristics of vacuum cleaners being of interest to the users and to describe methods for measuring these characteristics."

Part 2.9 – Performance with a Partly Filled Dust Receptacle

11. The intention of the part 2.9 (draft 4.0 edition) procedure "is to provide means to measure the performance of a vacuum cleaner having a dust loaded receptacle." Only the IEC 60312, part 2.9 procedure is the only consensus standard method for the suction of the vacuum cleaner under dust-loaded conditions. The ASTM does not have a comparable standard for dust-loaded suction.

12. IBR measured air suction of the vacuum cleaner while being loaded with specified dust[1] in accordance with part 2.9, stopping at Condition 1 or Condition 2, whichever was first reached. IBR did not measure air suction stopping at Condition 3. Condition 3 is still under consideration and review by the IEC Committee for Standard 60312.

13. As is my customary practice, I supervised IBR employees David Wright (DW) and Dan Nedry (DN), who performed the IEC 60312, part 2.9 tests on three identical Maytag Legacy and three identical Hoover Fusion upright vacuums that had been purchased on the open market from local vendors. All machines were new when tested.

[1] Test dust used was in accordance with the requirements set forth in part 2.9 of the IEC Standard 60312. IBR prepared the test dust mixture shortly before executing the part 2.9 tests, in accordance with the IEC-mandated recipe called for by that section. While it is possible to obtain ready-made dust mixtures purporting to conform to IEC test standards from overseas commercial suppliers, it has been my experience that the uniformity of the commercially-prepared dust mixtures is affected by a tendency of the dust and fiber particles to aggregate and clump together over time. Thus, it is IBR's standard procedure to mix all test dusts onsite at IBR in strict conformity with IEC procedures, shortly before conducting each vacuum performance test.

14. Following the testing, I reviewed and verified the results and prepared a report dated August 29, 2006 which demonstrates the loss of suction for each machine tested. It is the normal and customary business practice of IBR to prepare reports of this nature following the completion of testing, and copies of these reports are maintained by IBR in the ordinary course of its business. The report is attached as Exhibit 3 to this declaration. This report shows the three different Maytag Legacy and three different Hoover Fusion vacuum test results by serial number (S/N). Graphs of the results from the IEC Part 2.9 test on the Maytag Legacy and Hoover Fusion are attached hereto as Exhibits 4 and 5, respectively.

15. The three Maytag Legacy upright vacuum cleaners IBR tested experienced a loss of suction before the bin fill lines were reached at 1200 grams. The percentage reduction (% loss) of suction on the 50mm orifice for each of the three machines at the point of reaching the bin fill lines was 37.1, 35.9, and 28.2%, respectively. With a statistical confidence of 95%, these three Maytag Legacy cleaners had an average reduction of suction of 33.3% +/-5.5%. A graphical representation of the test results is set forth at Exhibit 4.

16. The three Hoover Fusion upright vacuum cleaners IBR tested experienced a loss of suction before the bin fill lines were reached at 1200 grams. The percentage reduction (% loss) of suction on the 50mm orifice for each of the three machines at the point of reaching the bin fill lines was 37.1, 37.8., and 35.5%, respectively. With a statistical confidence of 95%, these three Hoover Fusion cleaners had an average reduction of suction of 36.8% +/-1.3%. A graphical representation of the test results is set forth at Exhibit 5.

I swear under penalty of perjury that the foregoing is true and correct, and that I executed this declaration on 29 August, 2006 at Grass Lake, Michigan.

Susan H. Goldsmith
Managing Director/Director of Technical Services
Inter Basic Resources, Inc.

30190669.4

Exhibit 1

Susan H Goldsmith
IBR
11599 Morrissey Rd Grass Lake Mi USA 49240
Voice 517-522-8453
Fax 517-522-3695
Email sgoldsmith@IBR-USA.com

Education:

B.S. Cellular Biology, University of Michigan, Ann Arbor, 1978
B.S. ChE, University of Michigan, Ann Arbor, 1978

Employment:

1978-1984 Gelman Sciences, Ann Arbor, MI
R&D Technician 1978
Development Engineer, Cartridge R&D, 1978- 1980
Membrane R&D
R&D Supervisor, Cartridge R&D, 1982-84

1984- Present, IBR Grass Lake MI
Co- Founder and Owner
A2LA accredited lab for filter testing.A2LA certificate # 1362.01.

Over 30 technical papers

Active member of ASTM, SAE, IEC, including many technical committees.

Exhibit 2

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI IEC 60312

Edition 3.2

2004-05

Edition 3:1998 consolidée par les amendements 1:2000 et 2:2004
Edition 3:1998 consolidated with amendments 1:2000 and 2:2004

Aspirateurs de poussière à usage domestique – Méthodes de mesure de l'aptitude à la fonction

Vacuum cleaners for household use – Methods of measuring the performance

Numéro de référence
Reference number
CEI/IEC 60312:1998+A1:2000+A2:2004

2.8.1 Conditions for measurement

Vacuum cleaners, which in normal operation are equipped with hose and/or connecting tube, shall have such components attached but without nozzle or brush. For upright cleaners with option to be operated with or without a hose, air data shall be obtained for both options and be reported separately.

2.8.2 Test equipment

Either of the alternative test equipment described in 5.2.8 may be used. The test report shall state which of the alternative test equipment has been used to obtain the air data.

2.8.3 Determination of air data

Air flow, vacuum and input power are determined for a number of throttlings sufficient for plotting curves of vacuum and input power against the air flow (see figure 12).

Prior to the sequence of measurements, the vacuum cleaner shall be operated unthrottled in accordance with 1.4.7 to establish a reference value of the exhaust air temperature for further measuring points.

For each measuring point, the air flow, vacuum and input power are recorded 1 min after the throttling. The cleaner is then again operated unthrottled to attain the reference conditions, which is checked by measuring the exhaust air temperature. This procedure is continued until all the entire curves have been plotted with the measuring point for maximum vacuum being the last one.

For each measuring point, the suction power P_2 is obtained as the product of the air flow q and the vacuum h. The efficiency η is calculated as the ratio of corresponding values of the suction power and input power. Curves of suction power and of efficiency are also plotted against the air flow (see figure 12).

2.9 Reduction in maximum air flow with a partly filled dust receptacle

The purpose of this test is to determine the reduction in maximum air flow when an amount of test dust, related to the volume of the dust receptacle, is introduced into the cleaner.

NOTE 1 The maximum usable volume of the dust receptacle (see 2.7) is an indication of the maximum volume which can be used in practice if the natural dirt is of fibrous nature.

NOTE 2 The reduction in maximum air flow with a partly filled dust receptacle is an indication to what extent the volume of the receptacle can be used in practice if the natural dirt is of a clogging nature.

NOTE 3 When expressing the test result for consumers' information, it is preferable to associate the reduction in maximum air flow with the quantity of test dust introduced. Example: 40 % reduction with 250 g of test dust.

2.9.1 Test dust

Mineral dust/wood flour mixture, in accordance with 5.1.2.4, shall be used.

The amount of test dust to be used shall be 50 g/l of the maximum usable volume of the dust receptacle (see 2.7).

2.9.2 Détermination de la réduction du débit d'air maximal

Le débit d'air maximal de l'aspirateur équipé d'un réservoir à poussière propre est déterminé conformément à 2.8. L'aspirateur fonctionnant dans sa position normale, la quantité de poussière d'essai déterminée est introduite dans l'aspirateur et le débit d'air maximal est de nouveau mesuré. L'aspirateur doit rester en fonctionnement durant toute cette procédure.

NOTE Pour les aspirateurs verticaux ne comportant pas de possibilité d'utilisation d'un tuyau en option, la poussière d'essai est introduite par un adaptateur du suceur (voir figure 11) ou un autre dispositif d'approvisionnement approprié.

La réduction du débit d'air maximal, en pourcentage, est calculée à partir de la formule suivante:

$$\text{réduction du débit d'air maximal} = \frac{q_{max} - q_c}{q_{max}} \times 100$$

où

q_{max} est le débit d'air maximal avec le réservoir à poussière propre, en dm^3/s;

q_c est le débit d'air maximal avec le réservoir à poussière partiellement rempli, en dm^3/s.

Trois mesures doivent être effectuées pour établir une valeur moyenne qui représente la réduction du débit d'air maximal.

2.10 Emission de poussière par l'aspirateur

L'objet de cet essai est de déterminer la concentration moyenne de poussière dans l'air refoulé par l'aspirateur lorsqu'il fonctionne à son débit d'air maximal en étant alimenté de la quantité spécifiée de poussière d'essai. L'essai n'a pas été élaboré pour traiter des aspects médicaux d'allergies.

Avant l'essai, l'aspirateur doit être soumis aux mesures des caractéristiques d'aspiration (voir 2.8) afin d'établir le débit d'air maximal de l'aspirateur.

2.10.1 Equipement d'essai

L'équipement tel qu'il est décrit en 5.2.9 se compose d'une hotte d'essai avec un tube de prélèvement d'échantillons, un distributeur de poussière et un instrument de mesurage (compteur de particules). Le débit d'air auquel le compteur de particules fonctionne doit être connu.

Le diamètre du tube de prélèvement d'échantillons doit être choisi en fonction du débit d'air dans le tuyau de la hotte (déterminé à partir du débit d'air maximal de l'aspirateur) et du débit d'air du compteur de particules, de façon à conserver à peu près une condition isocinétique à l'orifice du tube de prélèvement, c'est-à-dire que la vitesse de l'air dans le tuyau de la hotte soit égale à la vitesse de l'air dans le tube de prélèvement. En alternative, on peut utiliser un tube de prélèvement d'échantillons comportant des buses d'entrée interchangeables et ayant des ouvertures de diamètres différents.

2.10.2 Poussière d'essai

On doit utiliser pour cet essai de la poussière d'essai conforme à 5.1.2.5.

2.9.2 Determination of the reduction in maximum air flow

The maximum air flow of the vacuum cleaner, equipped with a clean dust receptacle, is determined in accordance with 2.8. With the cleaner running in its normal position of operation, the established amount of test dust is introduced into the cleaner and the maximum air flow is then measured again. The vacuum cleaner shall be kept running throughout this procedure.

NOTE For upright cleaners without provision for optional use of a hose, the test dust is introduced through a nozzle adaptor (see figure 11) or other suitable feeding device.

The reduction in maximum air flow, in per cent, is calculated from the following formula:

$$\text{reduction in maximum air flow} = \frac{q_{max} - q_c}{q_{max}} \times 100$$

where

q_{max} is the maximum air flow with clean dust receptacle, in dm^3/s;

q_c is the maximum air flow with partly filled dust receptacle, in dm^3/s.

Three separate measurements are carried out to establish a mean value representing the reduction in maximum air flow.

2.10 Dust emission of the vacuum cleaner

The purpose of this test is to determine the average dust concentration in the exhaust air of a vacuum cleaner when operating at its maximum air flow and fed with test dust at a specified rate. The test has not been developed to reflect medical aspects of allergens.

Prior to the test, the vacuum cleaner shall have been subjected to air data measurements (see 2.8) in order to establish the maximum air flow of the cleaner.

2.10.1 Test equipment

The equipment, as described in 5.2.9, comprises a testing hood with a sampling probe tube, a dust dispenser and a dust measuring instrument (particle counter). The air flow at which the particle counter operates shall be known.

The diameter of the sampling probe tube shall be chosen with respect to the air flow in the chimney tube (determined from maximum airflow of the cleaner) and the air flow of the particle counter, in such a way as to maintain an almost isokinetic state at the opening of the probe tube, i.e. air velocity in the chimney tube ≈ air velocity in the probe tube. Alternatively, a probe tube with exchangeable inlets of differing hole diameters may be used.

2.10.2 Test dust

Test dust, in accordance with 5.1.2.5, shall be used for this test.

Exhibit 3

INTERBASIC RESOURCES INC.

IBR®

Test Report Summary

IBR JN 8561 and 8648 shown in combination
Summary Date: 29 August 2006
Test Dates:
IBR JN 8561 : 12 July 2006
IBR JN 8648: 23 August 2006
Test Method: IEC 60312 sec 2.9 air flow with loaded dust receptacle, per committee draft 4.0
Contaminant: IEC 60312 WG3 mix per sec 5.1.2.3 of 4th draft

	Maytag legacy- IBR JN 8561						Hoover Fusion- IBR JN 8648					
Dust	S/N 0506000010334		S/N 050600010149		S/N 050600008696		S/N 080500220289		S/N 09050258451		S/N 09050263988	
Fed g	Corrected Suction, kPa	% Loss	Corrected Suction, kPa	% Loss	Corrected Suction, kPa	% Loss	Corrected Suction, kPa	% Loss	Corrected Suction, kPa	% Loss	Corrected Suction, kPa	% Loss
0	0.199	0.0%	0.199	0.0%	0.178	0.0%	0.249	0.0%	0.231	0.0%	0.195	0.0%
50	0.199	0.0%	0.199	0.0%	0.178	0.0%	0.249	0.0%	0.234	1.1%	0.195	0.0%
100	0.201	1.3%	0.201	1.3%	0.178	0.0%	0.247	-1.0%	0.231	0.0%	0.193	-1.3%
150	0.206	3.8%	0.201	1.3%	0.181	1.4%	0.242	-3.1%	0.229	-1.1%	0.195	0.0%
200	0.211	6.4%	0.204	2.6%	0.178	0.0%	0.237	-5.2%	0.226	-2.2%	0.198	1.3%
250	0.209	5.1%	0.204	2.6%	0.181	1.4%	0.237	-5.2%	0.229	-1.1%	0.195	0.0%
300	0.206	3.8%	0.204	2.6%	0.181	1.4%	0.234	-6.2%	0.226	-2.2%	0.195	0.0%
350	0.204	2.6%	0.201	1.3%	0.181	1.4%	0.234	-6.2%	0.224	-3.3%	0.193	-1.3%
400	0.201	1.3%	0.201	1.3%	0.183	2.9%	0.231	-7.2%	0.221	-4.4%	0.193	-1.3%
450	0.199	0.0%	0.199	0.0%	0.183	2.9%	0.234	-6.2%	0.221	-4.4%	0.190	-2.6%
500	0.199	0.0%	0.194	-2.6%	0.178	0.0%	0.231	-7.2%	0.221	-4.4%	0.193	-1.3%
550	0.194	-2.6%	0.194	-2.6%	0.178	0.0%	0.234	-6.2%	0.226	-2.2%	0.193	-1.3%
600	0.191	-3.8%	0.191	-3.8%	0.176	-1.4%	0.231	-7.2%	0.224	-3.3%	0.195	0.0%
650	0.191	-3.8%	0.191	-3.8%	0.176	-1.4%	0.231	-7.2%	0.221	-4.4%	0.195	0.0%
700	0.194	-2.6%	0.189	-5.1%	0.173	-2.9%	0.234	-6.2%	0.224	-3.3%	0.193	-1.3%
750	0.191	-3.8%	0.186	-6.4%	0.173	-2.9%	0.237	-5.2%	0.221	-4.4%	0.198	1.3%
800	0.189	-5.1%	0.186	-6.4%	0.173	-2.9%	0.231	-7.2%	0.216	-6.7%	0.195	0.0%
850	0.186	-6.4%	0.186	-6.4%	0.168	-5.7%	0.231	-7.2%	0.219	-5.6%	0.193	-1.3%
900	0.176	-11.5%	0.183	-7.7%	0.145	-18.6%	0.229	-8.2%	0.219	-5.6%	0.190	-2.6%
950	0.166	-16.7%	0.178	-10.3%	0.138	-22.9%	0.231	-7.2%	0.216	-6.7%	0.190	-2.6%
1000	0.158	-20.5%	0.173	-12.8%	0.130	-27.1%	0.234	-6.2%	0.219	-5.6%	0.193	-1.3%
1050	0.150	-24.4%	0.163	-17.9%	0.122	-31.4%	0.231	-7.2%	0.208	-10.0%	0.188	-3.9%
1100	0.143	-28.2%	0.155	-21.8%	0.117	-34.3%	0.221	-11.3%	0.188	-18.9%	0.170	-13.2%
1150	0.135	-32.1%	0.148	-25.6%	0.115	-35.7%	0.201	-19.6%	0.167	-27.8%	0.157	-19.7%
1200	0.127	-35.9%	0.143	-28.2%	0.112	-37.1%	0.157	-37.1%	0.144	-37.8%	0.126	-35.5%

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.

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IBR JN 8648:	Performed By: DN	Data Location: DN40
IBR JN 8561:	Performed By: DW	Data Location: DW160

Reviewed By: ✓ Signature valid Susan Goldsmith

Digitally signed by Susan Goldsmith
DN: cn=Susan Goldsmith, o=IBR, c=US
Date: 2006.08.29 22:02:16 -04'00'

Susan H. Goldsmith, Director of Technical Services

IBR 11599 Morrissey Rd Grass Lake MI USA 49240 Voice 517-522-8453 Fax 517-522-3695

Exhibit 4

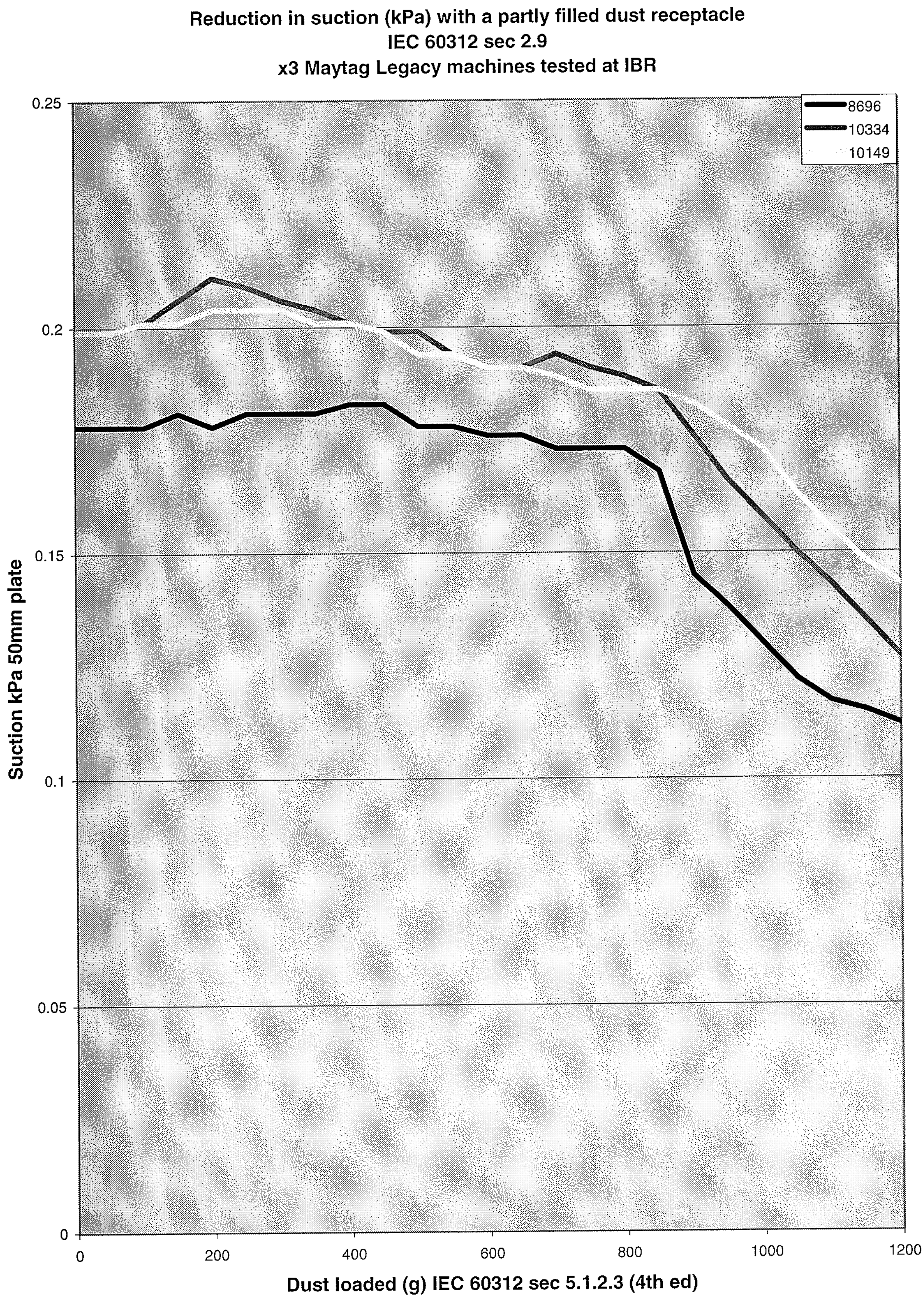
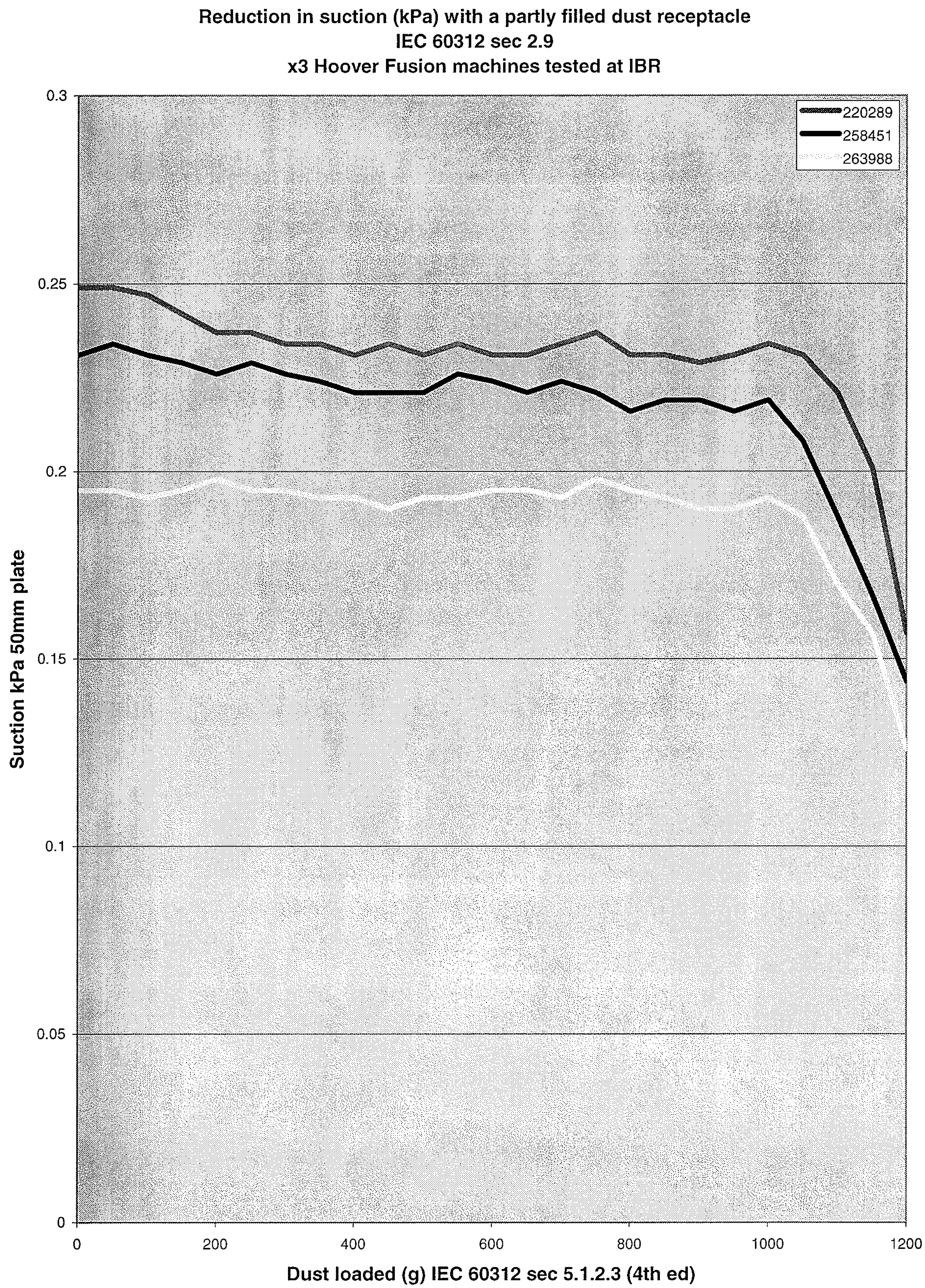

Reduction in suction (kPa) with a partly filled dust receptacle
IEC 60312 sec 2.9
x3 Maytag Legacy machines tested at IBR
8696
10334
10149
Suction kPa 50mm plate
0.25
0.2
0.15
0.1
0.05
0
0
200
400
600
800
1000
1200
Dust loaded (g) IEC 60312 sec 5.1.2.3 (4th ed)

Exhibit 5


Reduction in suction (kPa) with a partly filled dust receptacle
IEC 60312 sec 2.9
x3 Hoover Fusion machines tested at IBR
220289
258451
263988
Suction kPa 50mm plate
0.3
0.25
0.2
0.15
0.1
0.05
0
0
200
400
600
800
1000
1200
Dust loaded (g) IEC 60312 sec 5.1.2.3 (4th ed)